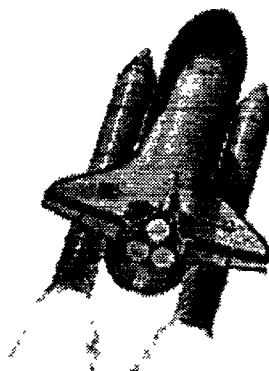


SDMS Doc ID 166253

The Space Shuttle Reusable Solid Rocket Motor (RSRM)



As the Apollo program came to a close, the development of a manned, reusable space transportation system became the primary focus of the U.S. space effort. In 1974, Thiokol was chosen by the National Aeronautics and Space Administration (NASA) to design and build the solid rocket motors that would boost the fleet of orbiters from the launch pad to the edge of space. Thiokol's efforts were rewarded in 1981 with the maiden flight of Columbia (STS-1). A new era in space exploration had begun.

The Space Shuttle reusable solid rocket motor (RSRM) is the largest solid rocket motor ever flown and the first designed for reuse. The reusability of the RSRM case is one of the most important cost saving factors in the nation's Space Transportation System. From ignition to end of burn, each RSRM generates an average thrust of 2,600,000 pounds and burns for approximately 123.6 seconds. Each motor is just over 126 feet long and 12 feet in diameter. The entire booster--including nose cap, frustum, and forward and aft skirts--is approximately 149 feet long. Of the motor's total weight of 1,252,000 pounds, propellant accounts for 1,107,000 pounds. Each launch requires the boost of two RSRMs. By the time the twin RSRMs have completed their task, the Space Shuttle orbiter has reached an altitude of 24 nautical miles and is traveling at a speed in excess of 3,000 miles per hour.

With safety, quality, and reliability as their primary objectives, Thiokol engineers direct approximately 110,000 quality control inspections on each RSRM flight set. In addition, RSRMs are periodically static tested as part of an ongoing quality assurance and development process.

- [The Reusable Solid Rocket Motor \(RSRM\) Cycle](#)
- [Reusable Solid Rocket Motor Derivative Boosters](#)
- [Upcoming Shuttle Launches \(NASA site\)](#)
- [Frequently Asked Questions about the Space Shuttle \(NASA site\)](#)
- [Space-related Thiokol Propulsion Products: Castor Series Motors, STAR Series Motors, Solar Thermal Propulsion](#)

© 1999, Thiokol Propulsion all Rights Reserved.

Send comments or suggestions to: webmaster@thiokol.com

Site Map

Air Force Strategic

Demilitarization

NASA RSRM

Navy Strategic

New Products

Ordnance

Space Programs

Tactical & Theater
Missile Defense

TCH™ (Composite Resins)

Technology (R&D)

Thiokol Propulsion